



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,434	10/28/2003	Venkat Rangan	112-0121US	4459
29855	7590	03/26/2007	EXAMINER	
WONG, CABELLO, LUTSCH, RUTHERFORD & BRUCCULERI, L.L.P. 20333 SH 249 SUITE 600 HOUSTON, TX 77070			SUN, SCOTT C	
		ART UNIT	PAPER NUMBER	2182

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/695,434	RANGAN ET AL.	
	Examiner Scott Sun	Art Unit 2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 October 2003.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-24 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 24 is objected to because of the following informalities: claim 24 states its dependency on claim "235", which does not exist. It is assumed that it instead depends on claim 23. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
3. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edsall et al (PG Pub 2003/0172149) in view of Merkey et al (PG Pub 2003/0070043).
4. Regarding claim 13, Edsall discloses a network (SAN, figure 1B) comprising:
 - at least one host (hosts 144, 146);
 - at least two storage devices (storage devices 132-142);
 - a fabric (switches 148, 150, 152; inter-switch links 154, 156) coupling the at least one host and the at least two storage units (paragraph 39), the fabric comprising:
 - at least one switch (switches 148, 150, 152) for coupling to the at least one host and the at least two storage units; and
 - a storage processing device (port processing logic in the switches, shown in figure 3A; paragraph 53) coupled to the at least one switch and for coupling to

the at least one host and the at least two storage units, the storage processing device including:

an input/output module (logic elements 302, 304, 306, 320, 322, 324) including processors to receive and transmit network traffic (paragraph 53), and

a control module (virtual processor 308) coupled to said input/output module (paragraph 43, 54, 61). Examiner notes that Edsall teaches that the ports are "intelligent" which implements various virtualization functions (such as those of paragraph 43) of a storage network.

Edsall does not disclose explicitly that the port processors and control module perform asynchronous data journaling. However, Merkey disclose asynchronous data journaling function in a storage network (paragraph 156). Teachings of Edsall and Merkey are from the same area of storage area networks.

Therefore, it would have been obvious at the time of invention for a person of ordinary skill in the art to combine teachings of Edsall and Merkey by adding the function of data journaling into the system of Edsall for the benefit of disaster recovery (paragraph 161, Merkey).

5. Regarding claim 14, Edsall and Merkey combined disclose claim 13 and Merkey further discloses wherein said port processors include table information (segment sector table, paragraph 161) relating to asynchronous data journaling and wherein said control module is coupled to said table information to maintain said table information for asynchronous data journaling. Examiner notes that Edsall discloses that multiple

virtualization functions can be implemented by the intelligent ports, which can further include those related to data journaling as disclosed by Merkey.

6. Regarding claim 15, Edsall and Merkey combined discloses claim 13 and Merkey further discloses wherein said port processors perform data and command replication (read and write log) and response gathering (updating the log as new copies are made, paragraph 156) to support asynchronous data journaling.

7. Regarding claim 16, Edsall and Merkey combined discloses claim 15 and Merkey further discloses wherein said port processors include a dirty region log (dirty LRU list 3310) and wherein said port processors update said dirty region log when a new region is written (paragraph 180).

8. Regarding claim 17, Edsall and Merkey combined discloses claim 15, and Merkey further discloses wherein said port processor prepare journal log entries and write said log entries to support asynchronous data journaling (paragraph 156).

9. Regarding claim 18, Edsall and Merkey combined discloses claim 17, and Merkey further discloses wherein said processors include a dirty region log (dirty LRU list 3310) and wherein said port processors update said dirty region log when a new region is written (paragraph 180).

10. Claims 1-12, 19-24 are substantially similar to claims 13-18. Therefore, the same grounds of rejection are applied.

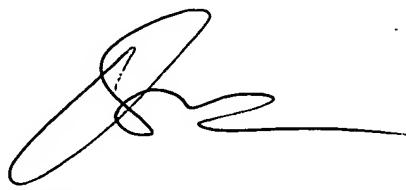
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Sun whose telephone number is (571) 272-2675. The examiner can normally be reached on M-F, 10:30am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim N. Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS



KIM HUYNH
SUPERVISORY PATENT EXAMINER
3/19/07